

GOVERNANCE AND REGULATION MODELS TO MANAGE DISRUPTIVE MOBILITY SERVICES

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INTRODUCTION

The proliferation of new technologies and disruptive innovations in the transport sector are taking the world by storm, threatening well established players across many sectors. Regulators and decision makers at different levels of government are facing challenges, acknowledging that existing frameworks may not be fully adequate in terms of protecting society, fostering business development, and achieving integrated, sustainable mobility.

UITP coordinated an EU-funded research project called GECKO (Governance for new mobility services) between 2018 and 2021. The project's main goal was to support transport authorities with tools and recommendations to develop and implement new regulatory frameworks for the new mobility era of cooperative, inclusive, competitive, sustainable and interconnected mobility across all modes.

This Project Brief presents the main achievements and key results from the projects. It presents the main and most practical recommendations that are addressed to different authorities.



DISRUPTIVE INNOVATION

GECKO's focus was on 'disruptive innovations', which are characterised by three key elements:

- **An enabling technology:** An invention that makes services/products more affordable and accessible to a wider population e.g the smart phone
- **An innovative business model:** Targeting non consumers, new customers, who previously did not buy a product, did not use a service in a given market or were the least profitable customers.
- **A coherent value network:** A network in which suppliers, partners, distributors, and customers are all better off when the disruptive technology prospers.

EXAMPLES STUDIED IN GECKO

GECKO focused on four specific categories of innovative and disruptive services and products, analysing their market readiness, according to a market analysis¹.

CONNECTED, COOPERATIVE, AND AUTOMATED MOBILITY

Connected vehicles: Defined as motor vehicles that “connects to other vehicles and/or devices, networks and services outside the car including the internet, other cars, home, office or infrastructure”². In the future, connected vehicles may directly interact with each other and with the road infrastructure, otherwise known as cooperative mobility.

Automated vehicles: Defined as having “technology available to assist the driver so that elements of the driving task can be transferred to a computer system”³. In contrast, an **autonomous vehicle** where there is no human interaction.

Table 1: Market Readiness Scale

New mobility service/ technology	Market readiness (1-10)	Market positioning	Market maturity
Connected and automated vehicle	4-5 (Between small-scale stakeholder campaign and large-scale early adopter campaign)	New market/ Re-segmentation of existing market by employing a niche strategy	Introduction / Development stage
Passenger urban air mobility	5-6 (Between large scale early adopter campaign and proof of traction ⁴)	New market	Introduction / Development stage
Drone last mile delivery	6	New market/ Re-segmentation of existing market by employing a niche strategy	Growth stage

INFRASTRUCTURE, NETWORK, AND TRAFFIC MANAGEMENT

An innovation in infrastructure can be defined as management through pricing, taxation, digitalisation and integration. Network and traffic management provides guidance to travellers on the condition of the road network, to ensure safe and efficient use of the network.

Table 2: Summary of Market Analysis

New mobility service/ technology	Market readiness (1-10)	Market positioning	Market maturity
Big data for fleet management and logistics	6 Proof of traction (Paying customers)	New market (Introduction of big data in logistics not available before)	Growth (Multiplication of service offers)
Traffic management 2.0	4 Small scale stakeholder campaign	Re-segmentation of existing market by employing a niche strategy	Introduction / Development stage
Hyperloop	3 Needs validation	New market (Introduction of a new mode of transport)	Introduction/ Development stage

¹ Market Readiness estimates the maturity of development of a product. A scale of market readiness helps identify whether a service or a product is in ideation.

² Gowling WLG, 2016. *Are you data Driven?*. UK Autodrive.

³ European Parliament, January 2016, *Automated Vehicles in the EU*. Briefing.

⁴ Proof of traction means that a product or service is mature enough that its position on the market has proved its power of traction of customers.

MOBILITY AS A SERVICE AND PLATFORMS

Mobility as a Service (MaaS) is the integration of, and access to, different transport services in one single digital mobility offer, with active mobility and an efficient public

transport system as its basis¹. The MaaS platform is the IT structure that is used by MaaS operators to provide the final service of mobility to the end-users.

Table 3: Summary of Market Analysis

New mobility service/ technology	Market readiness (1-10)	Market positioning	Market maturity
Maas	5-6 (Between large scale early adopter campaign and proof of traction)	New market/Re-segmentation of existing market by employing a niche strategy	Development stage
Passenger urban air mobility	5-6 (Between large-scale early adopter campaign and proof of traction)	New market	Development stage

SHARED ON-DEMAND MOBILITY

Shared mobility uses shared vehicles which are made available to registered users at various locations in the city. On-demand mobility, on the other hand, is service

provided “on-demand”, when requested by the customer, and not based on a fixed schedule.

Table 4: Summary of Market Analysis

New mobility service/ technology	Market readiness (1-10)	Market positioning	Market maturity
On-demand ride sharing	8 (Proof of scalability)	New market	Growth
Bike sharing	6 - 7 (Between proof of traction and proof of satisfaction)	Existing market	Growth/Maturity
E-scooter sharing / micromobility	7 - 8 (Between proof of satisfaction and proof of scalability)	New market	Growth
Ride-hailing	8 - 9 (Between Proof of scalability and Proof of stability)	Re-segmentation of an existing market as a low-cost player	Growth
Crowd shipping	8 (Proof of scalability)	New market	Growth



⁵ UITP, 2019. *Ready for MaaS? Easier mobility for citizens and better data for cities*. Report

REGULATION AND GOVERNANCE

Whether these new services can contribute to a transformation of city's mobility models in a more resilient and sustainable way, is central to the research. The research looked at specific regulatory and governing tools to support the definition and implementation of an appropriate framework for public authorities to ensure these services contribute to the public good.

The impacts of COVID-19 on innovative and disruptive mobility solutions and new governance practices has resulted in a drop of patronage, a weakening of the business models, but equally created opportunities from new user behaviours. Similarly, governance from authorities as a response to the crisis has evolved, whether new policies have been accelerated (such as more space for bicycles and pedestrians) or new collaborative approaches implemented with stakeholders of the new mobility service providers.



EXISTING REGULATORY FRAMEWORKS

The project analysed the existing regulatory frameworks of mobility at the international, EU and local level. The analysis led to the conclusion that even if a developed and strong regulatory framework allows for a variety of governance models to be implemented, some tailored governance model should be considered to deal with disruptive innovations.

These generate critical governance issues that need to be taken into account:

- 1 **Timing:** Regulators have a short window of opportunity to take over the governance from private actors, as they adapt quickly.
- 2 **The regulation of data:** Smart mobility innovations process huge amounts of data on citizens. Besides the significant power conferred to these private entities issued from these data, this data collection presents major risks for the travellers in terms of privacy if poorly

regulated. To ensure the successful implementation of innovations such as Intelligent Transport Systems (ITS) and MaaS, the data security, interoperability and data ownership need to be addressed.

- 3 **The distributional impact:** Ensuring equity and non-discrimination is part of a national government role. When mobility innovations are introduced, inequities might appear.
- 4 **Financing the development of disruptive innovations:** The question of how to balance taxes, subsidies, use of infrastructure and public interest still stands when more mobility innovations are introduced. The problem of taxation of smart mobility and the use of public space needs to be addressed by governments.
- 5 **Changing role of citizens:** With smart mobility, citizens provide information to mobility actors and other citizens; they provide services e.g in peer-to-peer sharing. It is therefore important to raise awareness about the importance of data protection and 'digital empowerment' of citizens.

INNOVATIVE GOVERNANCE MODELS

In the context where existing regulations are insufficient or not adapted to these innovative and disruptive services, GECKO presents five innovative governance models and analyses their advantages and drawbacks. Such models can be implemented to regulate fast evolving technologies and business models, such as disruptive mobility innovations.

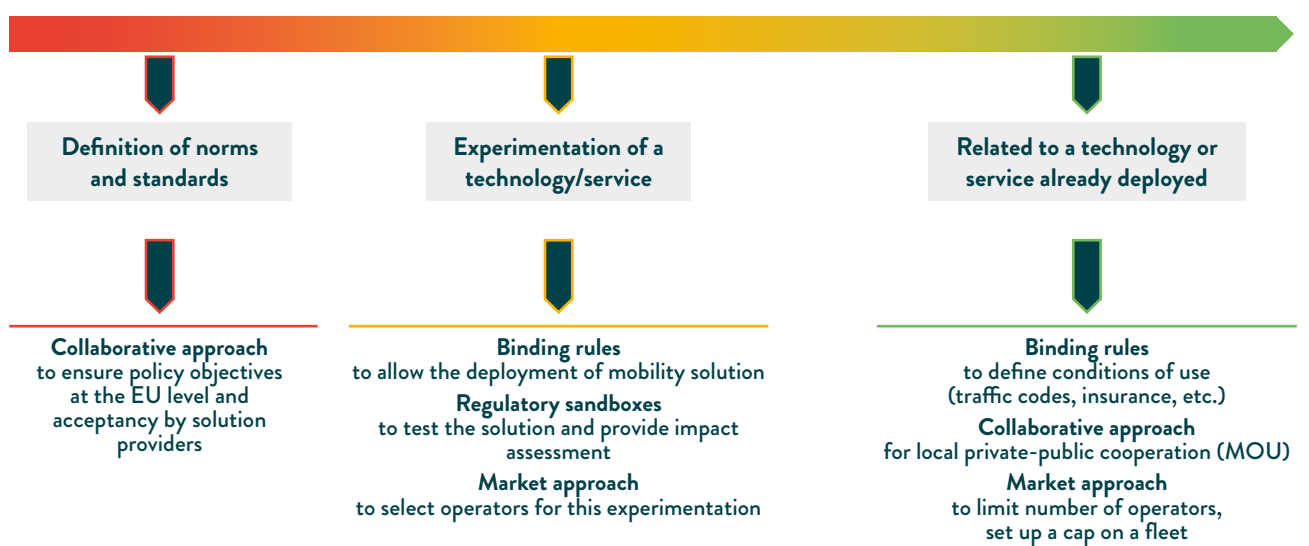


Table 5 Governance models and regulatory approaches to disruptive mobility innovations

Governance model: Regulatory approach	Definition	Example of policy instruments	Example for mobility	Stage of development	Advantages	Drawbacks
Adaptive regulation	Policies that can be adjusted over time, relying on data collection and analysis	Self/co-regulations Adaptive licensing	The SUMP (Sustainable Urban Mobility Plan) process	Impact assessment	High flexibility Compliant with fast evolving framework	Higher cost for impact assessment
Regulatory sandboxes	Deployment of the innovation on restricted and controlled conditions for impact analysis	Subsidies and incentives	Automated vehicles experimentations, pilot zones	Pilot projects Impact assessment	Innovation fostering Reduced time-to-market Higher acceptancy	High costs Risks for consumers testing the solution
Outcome-based regulations	Stakeholders impacted by the regulations achieve policy goals without constraints on the process	Self-regulations	GDPR set up a list of objectives to relevant stakeholders (e.g. Art. 17)	Impact assessment	High flexibility Higher acceptancy	Lack of guidance Higher cost for impact assessment
Risk-based regulation	Regulatory activities and resources activities allocated on evidence-based assessment risks	All policy instruments can be used	Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft	Pilot projects Impact assessment	Better decision-making	Higher cost for impact assessment
Collaborative regulation	All stakeholders involved in the definition of the regulation/policy	Co-regulation	Memorandum of Understanding in Lisbon to regulate shared mobility	Definition of standards	Inclusive approach, sharing of knowledge and resources	Time consuming No clear leadership

Various governance models can be suitable depending on the context and on the stage of deployment of the solution in the market. The choice of appropriate governance model can be different, as illustrated below.

Figure 1 Examples of suitable governance models for mobility innovations based on Regulation Readiness Level⁶

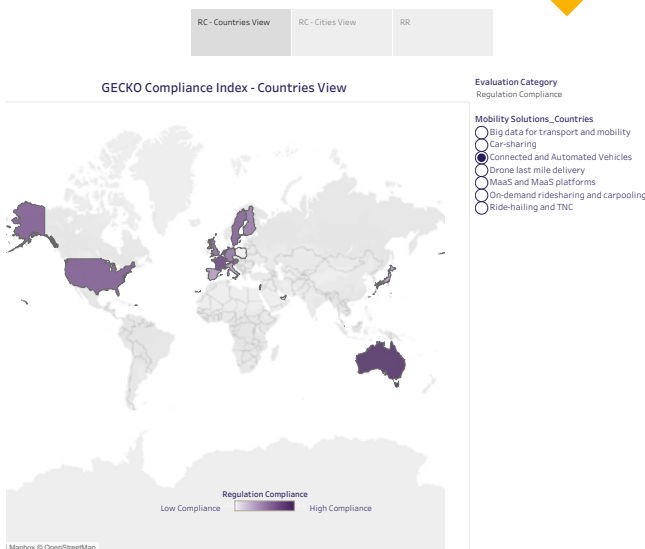


⁶ Regulation Readiness evaluates, on the one hand, whether existing regulations and laws are developed enough to help implement innovations and, on the other, whether regulations and laws allow for mainstreaming of an innovative solution.

COMPLIANCE MAP: BEST PRACTICE IN REGULATION

To design and development regulatory support tools for the regulations of disruptive mobility solutions, GECKO has produced a Compliance Map¹. This best tool illustrates the level of compliance of regulatory frameworks with respect to evolving current and future mobility markets and the main barriers to market accessibility for different mobility services, business models and technologies.

This tool helps policy makers to provide prospects at different levels of adherence with specific regulatory framework conditions and to anticipate policy actions and governance.

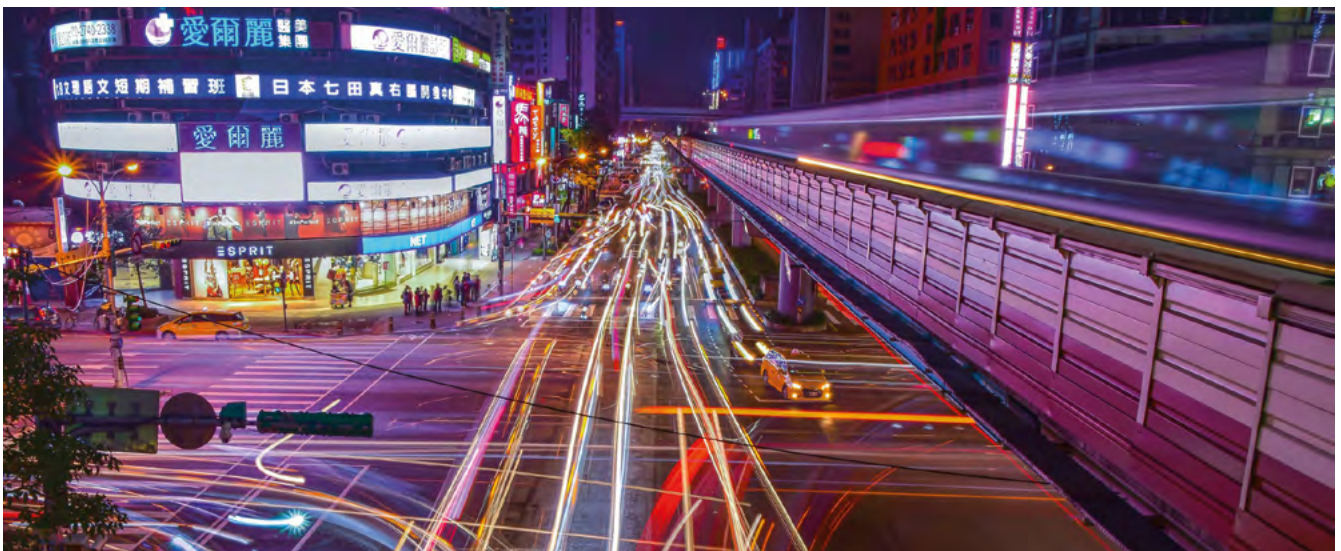


CONCLUSION

Authorities require support with tools for new regulatory frameworks to lead the transition to the new mobility era of cooperative, inclusive, competitive, sustainable and interconnected mobility across all modes.

Many of the disruptive innovations presented in GECKO could bring much needed support to accelerate the shift to sustainable urban mobility, contributing to a more integrated transport system. However, some may not. How can we ensure that these new products or services contribute to a transformation of our mobility and meet the public good and general interest? Of course, this is a political challenge and two warnings are put forward:

- 1 Monitoring the compliance of the development of new mobility services against public good and the general interest, identifying the benefits and drawbacks of disruptive and innovative transport solutions should be fully part of authorities' role.
- 2 Flexible governance models (such as those promoted by GECKO) that are put in place should also be assessed: Any support that authorities could bring to innovative and disruptive mobility solution providers by setting a specific framework should be evaluated e.g whether flexible governance models should be temporary, whether a regime of exception should be maintained are major issues.



¹ Available here: h2020-gecko.eu/tools/compliance-map

RECOMMENDATIONS

The following set of recommendations were specifically aimed at European institutions and public authorities, however UITP believes that have a global scope. They provide guidance to design and implement more appropriate policies to enable adaptive and anticipatory governance and a regulatory framework for sustainable mobility.

NEW GOVERNANCE AND REGULATORY APPROACHES

The European Union (EU) should establish a common framework for governing mobility innovations:

- Provide a list of instruments that are appropriate for governance interventions in view of the specifics of a mobility innovation.
- Promote new flexible, adaptive governance approaches, such as collaborative governance, outcome-based regulation and regulatory sandboxes⁸ could be included in such framework.
- Assess the appropriateness of each governance approach that should be tailored to the features of the domain where they are applied.

COOPERATION OF SERVICES AMONG PUBLIC AND PRIVATE PARTIES

The EU should identify and facilitate cross-sectoral communication across governance levels and industry sectors and drive consultations around common needs between public and private parties.

- Encourage the establishment of collaboration mechanisms or forums that include local and national governments and are organised at a regular interval.
- Guidance, best practice, and communication support should be provided by the EU. This would also help the EU set policy direction.

CREATING A REGULATORY ENVIRONMENT FIT FOR NEW MOBILITY SERVICES

Public authorities, whether national or local, are encouraged to develop flexible regulations and policies which foster the development of new mobility platforms for knowledge and technological resource

exchanges and create conditions for business models for new mobility platforms to be developed.

DATA STRATEGY

The EU should set up minimum requirements for mobility service providers to manage data:

- Develop data management guidance for different topics (such as data privacy, protection and ownership) to resolve legal ambiguities and generate certainty.

The EU should support the establishment of clear standards for the type and format of data to be shared sustainably:

- Elaborate standards based on consultation of both transport and data experts and comply with international standard requirements.
- Guarantee a level-playing field and avoid market asymmetry by forestalling data reciprocity between the private and public sectors.
- Ensure privacy obligations are not breached.
- Promote the value of data sharing, based among other elements on better understanding mobility trends and consumer preferences.
- Ensure data ownership and sharing protocols are equitable.
- Promote data analysis based on re-skilling and upskilling of professionals.

SUSTAINABILITY AND RESILIENCE OF MOBILITY

The EU should define standardised procedures and new forms of cooperation (with a flexibility that considers the specificities of the territory) for agreements between cities and new mobility service providers:

- Promote approaches and define a framework to assess the impacts generated by the innovative and disruptive mobility services against high level sustainable strategies adopted by authorities.
- Grant visibility to cities and authorities that adopt exemplary and effective decarbonisation strategies involving innovative and disruptive mobility service providers.

⁸ Further explained in paragraph 2.3. of the GECKO Report, *Regulatory schemes and governance models for disruptive innovation*.

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